

S32G VEHICLE NETWORK PROCESSING REFERENCE DESIGN BOARD 2 (S32G-VNP-RDB2)



The S32G-VNP-RDB2 is a compact, highly optimized and integrated reference design board featuring the S32G vehicle network processor. With its high-performance computing capacity and rich input/output (I/O), this board can provide reference for a variety of automotive applications such as service-oriented gateways, vehicle central compute, domain controllers, safety processors and black boxes. Carmakers, suppliers and software ecosystem partners can directly use the RDB to help accelerate development for shorter time-to-market.

TECHNICAL HIGHLIGHTS

- Supports service-oriented gateway, vehicle compute and domain controller applications
- Hardware Security Engine (HSE), Ethernet Packet Forwarding Engine (PFE), and Low Latency Communications Engine (LLCE)
- Multiple network interfaces with 18 CAN/CAN FD and 12 Ethernet ports
- Supports low-power mode and multiple wake-up sources
- Strengthens safety design with power management IC

FEATURES

- Hardware key features:
 - 1 x NOR flash (64 MB)
 - 1 x eMMC (32 GB), 1x SD card slot
 - 1 x LPDDR4 (4 GB)
 - 6 x 100BASE-T1 Ethernet
 - 5 x 1000BASE-T Ethernet
 - 1 x 100BASE-TX Ethernet
 - 18 x FlexCAN
 - 5 x LINFlexD
 - 1 x FlexRay
 - 1 x USB 2.0
 - 5 x ADC, 1x DSPI, 1x I²C
 - 1 x PCIe X1
 - 1 x M.2 M-key, 1x M.2 E-key
- Supports functional safety features:
 - ASIL D S32G274A vehicle network processor
 - ASIL D VR5510 power management IC
 - ASIL B SJA1110A Ethernet switch
 - Fault management and reset logic circuits

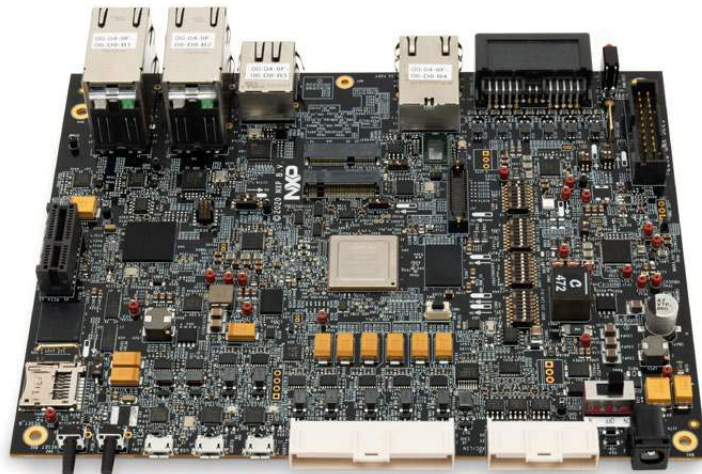
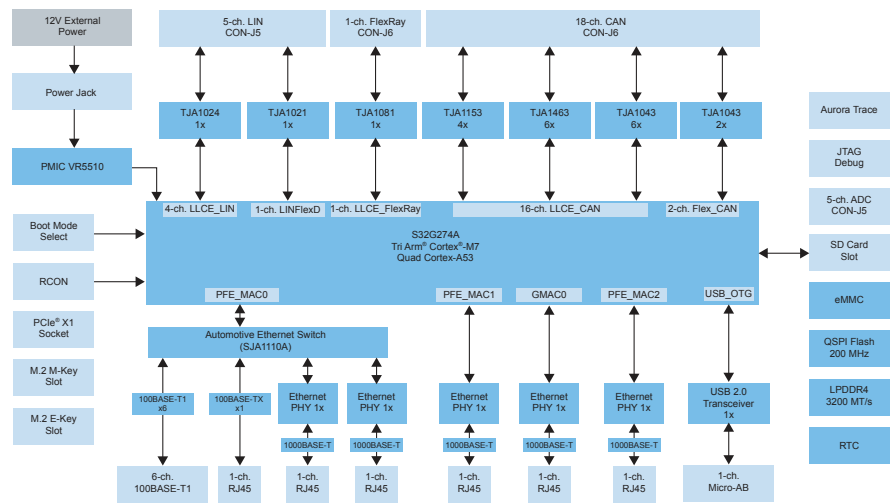
ENABLEMENT TOOLS

- NXP S32 Design Studio, Yocto, EB tresos™
- Linux®, FreeRTOS™, Real-Time Drivers (RTD)
- Compiler: Green Hills®, gcc
- Debugger: Lauterbach, S32G Debug Probe

S32G274A PROCESSOR SPECIFICATIONS

| | | | |
|--------------------------|--|--------|------------------------------------|
| Core | 3 x Arm® Cortex®-M7 LS pairs and 4 x Cortex-A53 cores (opt. cluster LS) | | |
| Memory | 8 MB system RAM, 32 KB standby RAM, DRAM I/F, QuadSPI I/F, eMMC/SDXC | | |
| Communications | FlexCAN, LINflexD, FlexRay, DSPI, I ² C, PCIe® 3.0, USB 2.0 | | |
| Ethernet Networks | 1-Gbit MAC, 1-Gbit/2.5-Gbit MAC (PFE_MAC0), 1-Gbit MAC (PFE_MAC2), 1-Gbit MAC (PFE_MAC1) | | |
| Security | HSE, XRDC, eFuse, Lifecycle | Safety | 2 x Safe DMA, FCCU and LBIST/MBIST |
| ADC/Timers | 12-bit SAR ADC, System timer module, software watchdog timer, periodic interrupt timer, FlexTimer, real-time clock | | |

SYSTEM BLOCK DIAGRAM



www.nxp.com

NXP, the NXP logo and EdgeLock are trademarks of NXP B.V. All other product or service names are the property of their respective owners. Arm and Cortex are trademarks or registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2021 NXP B.V.

Document Number: SG32VNPRDB2FS REV 1

